

CLAIMS

1. An optical detector with an arrangement of several semiconductor layers, comprising at least one zone absorbing in a predetermined wavelength region; at least one zone which is at least partially light-permeable in the predetermined wavelength region; one semiconductor layer which is absorbing in the predetermined wavelength region; a semiconductor layer which is located under said first mentioned semiconductor layer and is at least partially light-permeable in the predetermined wavelength region; said at least one light-permeable zone is formed as an interruption in the absorbing semiconductor layer; and a throughgoing doping provided on an upper surface of said absorbing semiconductor layer which surrounds the interruption and at least a part of an upper surface of the at least partially light-permeable semiconductor layer.

2. An optical detector as defined in claim 1, wherein the absorbing semiconductor layer is InGaAs, while the at least partially light-permeable semiconductor layer is InP.

3. An optical detector as defined in claim 1, wherein the throughgoing doping is a p-doping, and the at least partially light-permeable semiconductor layer is n-doped.

4. An optical detector as defined in claim 1, wherein two at least partially light-permeable semiconductor layers are provided with different doping concentrations.

5. An optical detector as defined in claim 1, wherein upper surfaces of the arrangement of several semiconductor layers are provided at least partially with an antireflection layer.

6. An optical detector as defined in claim 3; and further comprising a p-contact provided on the throughgoing p-doping, and an n-

contact provided on the n-doped partially light-permeable semiconductor layer.

7. An optical detector as defined in claim 1, wherein said at least partially light permeable semiconductor layer is thinned.

8. An optical detector as defined in claim 1, wherein a transition region between the at least partially light-permeable semiconductor layer is provided in a region of the interruption of the absorbing semiconductor layer.

9. An optical detector as defined in claim 1, wherein the at least partially light-permeable zone and the absorbing zone are circular symmetrical.

10. An optical detector as defined in claim 1, wherein the at least partially light-permeable zone and the absorbing zone has elongated shapes.

11. A method of producing an arrangement of several semiconductor layers, comprising the steps of forming at least one absorbing zone in a predetermined wavelength region; forming at least one light-permeable zone in the at least one predetermined wavelength region; forming a semiconductor layer that in the predetermined wavelength region is absorbing and a semiconductor layer located under it and that in the predetermined wavelength region is at least partially light-permeable region; realizing the at least one light-permeable zone by an interruption of the absorbing semiconductor layer; producing the interruption of the absorbing semiconductor layer by a local removal of the absorbing semiconductor layer; and introducing a throughgoing doping in an upper surface of the absorbing semiconductor layer that surrounds the interruption and in at least a part of an upper surface of the at least partially light-permeable semiconductor layer.

12. A method as defined in claim 11; and further comprising performing a local removal of the absorbing layer in a first masking step; and performing the doping in a second masking step.

13. A method as defined in claim 11; and further comprising performing a doping by a selective diffusion.

14. A method as defined in claim 11; and further comprising thinning the at least partially light-permeable semiconductor layer.

15. A method as defined in claim 1; and further comprising introducing a throughgoing opening in the at least partially light-permeable semiconductor layer in a region of the interruption of the absorbing semiconductor layer.

16. A method as defined in claim 15; and further comprising performing the introducing of the throughgoing opening by an etching process.

17. A method as defined in claim 15; and further comprising performing the introducing of the throughgoing opening by a laser cutting technique.

18. A method as defined in claim 11; and further comprising providing upper surfaces of the arrangement of several semiconductor layer at least partially with an antireflection layer.

19. A method as defined in claim 11; and further comprising providing an inclination of flanks in a region of the interruption by a process

selected from the group consisting of a crystal orientation, structuring, and both.

20. A method as defined in claim 11; and further comprising using InGaAs as the absorbing semiconductor layer; and using InP as the at least partially light-permeable semiconductor layer.

21. A method as defined in claim 11; and further comprising applying a p-contact on the throughgoing p-doping; and applying an n-contact on the n-doped partially light-permeable semiconductor layer.

22. A device for space application, comprising an optical detector with an arrangement of several semiconductor layers and including at least one zone absorbing in a predetermined wavelength region; at least one zone which is at least partially light-permeable in the predetermined wavelength region, one semiconductor layer which is absorbing in the predetermined wavelength region, a semiconductor layer which is located

under said first mentioned semiconductor layer and is at least partially light-permeable in the predetermined wavelength region; said at least one light-permeable zone is formed as an interruption in the absorbing semiconductor layer; and a throughgoing doping provided on an upper surface of said absorbing semiconductor layer which surrounds the interruption and at least a part of an upper surface of the at least partially light-permeable semiconductor layer.

23. A device for space application, comprising an optical detector produced by a method including the steps of forming at least one absorbing zone in a predetermined wavelength region, forming at least one light-permeable zone in the at least one predetermined wavelength region, forming a semiconductor layer that in the predetermined wavelength region is absorbing and a semiconductor layer located under it and that in the predetermined wavelength region is at least partially light-permeable region; realizing the at least one light-permeable zone by an interruption of the absorbing semiconductor layer; producing the interruption of the absorbing semiconductor layer by a local removal of the absorbing semiconductor layer; and introducing a throughgoing doping in an upper surface of the

absorbing semiconductor layer that surrounds the interruption and in at least a part of an upper surface of the at least partially light-permeable semiconductor layer.

24. A device for communication between satellites, comprising an optical detector with an arrangement of several semiconductor layers and including at least one zone absorbing in a predetermined wavelength region; at least one zone which is at least partially light-permeable in the predetermined wavelength region; one semiconductor layer which is absorbing in the predetermined wavelength region; a semiconductor layer which is located under said first mentioned semiconductor layer and is at least partially light-permeable in the predetermined wavelength region; said at least one light-permeable zone is formed as an interruption in the absorbing semiconductor layer; and a throughgoing doping provided on an upper surface of said absorbing semiconductor layer which surrounds the interruption and at least a part of an upper surface of the at least partially light-permeable semiconductor layer.

25. A device for communication between satellites comprising an optical detector produced by a method including the steps of forming at least one absorbing zone in a predetermined wavelength region, forming at least one light-permeable zone in the at least one predetermined wavelength region, forming a semiconductor layer that in the predetermined wavelength region is absorbing and a semiconductor layer located under it and that in the predetermined wavelength at least partially light-permeable region; realizing the at least one light-permeable zone by an interruption of the absorbing semiconductor layer; producing the interruption of the absorbing semiconductor layer by a local removal of the absorbing semiconductor layer; and introducing a throughgoing doping in an upper surface of the absorbing semiconductor layer that surrounds the interruption and in at least a part of an upper surface of the at least partially light-permeable semiconductor layer.